WHAT IS CLAIMED IS:

1. A probe microscope comprising:

a probe;

a scanner for generating relative motion between said probe and a sample;

a manual input device having a substantially unlimited range of mechanical motion to control a separation between the sample and said probe, said manual input device having a substantially unlimited range of mechanical motion;

a detector that generates a probe motion signal related to movement of said probe;

an alerting device responsive to said signal to provide substantially real-time feedback to an operator, the feedback being indicative of interaction between the sample and said probe.

2. The probe microscope of Claim 1, wherein said alerting device is a mechanical resistance device coupled to said manual input device.

3. The probe microscope of Claim 2, wherein said manual input device is a rotatable knob.

4. The probe microscope of Claim 3, wherein said resistance device is a passive resistance device that changes an amount of torque necessary to turn the knob.

5. The probe microscope of Claim 4, wherein said passive resistance device is a brake.

6. The probe microscope of Claim 4, wherein the amount of torque is related to a magnitude of the interaction.

7. The probe microscope of claim 2, wherein said resistance device is an active resistance device.

8. The probe microscope of Claim 7, wherein said active resistance device actively moves said manual input device.

9. The probe microscope of Claim 2, wherein the feedback produced by said resistance device is variable.

10. The probe microscope of Claim 9, wherein the probe motion signal is indicative of a tip-sample interaction, and wherein the variable resistance is related to the interaction.

11. The probe microscope of Claim 1, wherein the feedback produces an audible output, wherein the audible output is related to a magnitude of the interaction.

12. The probe microscope of Claim 11, wherein the audible output is one of pitch and volume.

13. The probe microscope of Claim 1, further comprising

a displacement sensor that measures the relative motion between said probe and the sample and generates a corresponding position signal; and

a closed-loop feedback controller that generates a drive signal in response to the position signal.

14. The probe microscope of Claim 3, wherein said knob has a range of motion greater than 180°.

15. The probe microscope of Claim 1, wherein the feedback is one of substantially proportional, exponential and logarithmic with respect to the interaction.

16. A method of making a force curve measurement on a sample, the method comprising:

manually controlling a separation between a probe and the sample;

measuring the separation;

detecting a force on the probe in response to said generating step;

providing an alert based on the force; and

wherein said controlling step includes using a rotatable knob.

17. The method of Claim 16, wherein said providing step includes using a brake to control a torque required to rotate the knob.

18. The method of Claim 17, wherein the torque is proportional to the force.

19. The method of Claim 16, wherein the knob has a range of motion greater than 180°.

20. The method of Claim 16, further comprising the step of repeating said controlling step in response to at least of one said measuring and detecting steps.

21. The method of Claim 16, wherein the alert is an audio alert.

22. A probe microscope including a probe that interacts with a sample, the microscope comprising:

a manual rotary input knob that modulates a separation between the probe and the sample, said knob having a range of motion greater than 180°;

an alerting device responsive to interaction between the probe and the sample so as to provide feedback to the operator, the feedback being indicative of a magnitude of the interaction.

23. The probe microscope of Claim 22, wherein said alerting device is a brake.

24. The probe microscope of Claim 23, wherein said brake is a passive resistance device that changes a torque required to rotate the knob.

25. A probe microscope comprising:

a probe;

a scanner for generating relative motion between said probe and a sample;

a linear manual input device to control a separation between the sample and said probe;

a detector that generates a probe motion signal related to movement of said probe;

an alerting device responsive to said signal to provide substantially real-time feedback to an operator, the feedback being indicative of interaction between the sample and said probe.